

**WHAT IS CLAIMED IS:**

1. An isolated polynucleotide comprising a member selected from the group consisting of:
  - (a) a polynucleotide encoding a polypeptide comprising amino acids 1 to 374 of SEQ NO ID:2;
  - (b) a polynucleotide encoding a polypeptide comprising amino acids 2 to 374 of SEQ NO ID:2;
  - (c) a polynucleotide encoding a polypeptide comprising amino acids 46 to 374 of SEQ NO ID:2;
  - (d) a polynucleotide encoding a polypeptide comprising amino acids 215 to 374 of SEQ NO ID:2;
  - (e) a polynucleotide encoding a polypeptide comprising amino acids 1 to 264 of SEQ NO ID:2;
  - (f) a polynucleotide encoding a polypeptide comprising amino acids 46 to 264 of SEQ NO ID:2;
  - (g) a polynucleotide encoding a polypeptide comprising amino acids 215 to 264 of SEQ NO ID:2;
  - (h) a polynucleotide encoding at least 30 contiguous amino acids of SEQ NO ID:2;
  - (i) a polynucleotide encoding at least 50 contiguous amino acids of SEQ NO ID:2;
  - (j) a polynucleotide capable of hybridizing to the polynucleotide of (a), (b), (c), (d), (e), (f), or (g);
  - (k) a polynucleotide which is at least 70% identical to the polynucleotide of (a), (b), (c), (d), (e), (f), or (g); and
  - (l) a polynucleotide fragment of the polynucleotide of (a), (b), (c), (d), (e), (f), or (g).
2. The isolated polynucleotide of claim 1 wherein the polynucleotide is DNA.
3. The isolated polynucleotide of claim 1 wherein the polynucleotide is RNA.

4. The isolated polynucleotide of claim 1 wherein the polynucleotide is genomic DNA.
5. The isolated polynucleotide of claim 1 encoding the polypeptide comprising amino acids 1 to 374 as set forth in SEQ ID NO:2.
6. The isolated polynucleotide of claim 1 encoding the polypeptide comprising amino acids 46 to 374 as set forth in SEQ ID NO:2.
7. The isolated polynucleotide of claim 1 encoding the polypeptide comprising amino acids 1 to 264 as set forth in SEQ ID NO:2.
8. The isolated polynucleotide of claim 1 encoding the polypeptide comprising amino acids 46 to 264 as set forth in SEQ ID NO:2.
9. The isolated polynucleotide of claim 1 encoding the polypeptide comprising amino acids 215 to 264 as set forth in SEQ ID NO:2.
10. An isolated polynucleotide comprising a member selected from the group consisting of:
  - (a) a polynucleotide which encodes a mature polypeptide having the amino acid sequence expressed by the DNA contained in ATCC Deposit No. 97160;
  - (b) a polynucleotide capable of hybridizing to the polynucleotide of (a);
  - (c) a polynucleotide which is at least 70% identical to the polynucleotide of (a); and
  - (d) a polynucleotide fragment of the polynucleotide of (a), (b), or (c).
11. The polynucleotide of claim 1 having the sequence as set forth in SEQ ID NO:1.
12. The polynucleotide of claim 1 comprising nucleotide 323 to nucleotide 1114 as set forth in SEQ ID NO:1.

13. The polynucleotide of claim 1 comprising nucleotide 458 to nucleotide 1114 as set forth in SEQ ID NO:1.

14. The polynucleotide of claim 1 comprising nucleotide 965 to nucleotide 1114 as set forth in SEQ ID NO:1.

15. A vector comprising the DNA of claim 2.

16. A host cell transformed or transfected with the vector of claim 15.

17. A process for producing a polypeptide comprising: expressing from the host cell of claim 16 the polypeptide encoded by said DNA.

18. A process for producing cells capable of expressing a polypeptide comprising genetically engineering cells with the vector of claim 15.

19. A polypeptide comprising a member selected from the group consisting of:

- (a) amino acids 1 to 374 of SEQ ID NO:2;
- (b) amino acids 46 to 374 of SEQ ID NO:2;
- (c) amino acids 1 to 264 of SEQ ID NO:2;
- (d) amino acids 46 to 264 of SEQ ID NO:2;
- (e) amino acids 215 to 264 of SEQ ID NO:2;
- (f) a polypeptide encoded by the the cDNA contained in ATCC Deposit No. 97160;
- (g) at least 30 contiguous amino acids of SEQ NO ID:2;
- (h) at least 50 contiguous amino acids of SEQ NO ID:2;
- (i) a polypeptide which is at least 70% identical to the polypeptide of (a), (b), (c), (d), (e), or (f); and
- (j) a polypeptide fragment of the polypeptide of (a), (b), (c), (d), (e), or (f).

20. The polypeptide of claim 19 comprising amino acids 215 to 264 of SEQ ID NO:2.

21. An antibody against the polypeptide of claim 19.
22. A compound which inhibits activation of the polypeptide of claim 19.
23. A compound which activates the polypeptide of claim 19.
24. A method for the treatment of a patient having need of TGF $\alpha$ -HII comprising: administering to the patient a therapeutically effective amount of the polypeptide of claim 19.
25. A method for the treatment of a patient having need to inhibit TGF $\alpha$ -HII comprising: administering to the patient a therapeutically effective amount of the compound of claim 22.
26. The method of claim 24 wherein said therapeutically effective amount of the polypeptide is administered by providing to the patient DNA encoding said polypeptide and expressing said polypeptide *in vivo*.
27. A process for identifying compounds active as agonists to the polypeptide of claim 19 comprising:
  - contacting a reaction mixture containing a cell type which expresses a TGF $\alpha$ -HII receptor and a compound to be screened; and
  - determining if the compound generates a signal from said receptor to identify if the compound is an effective agonist.
28. A process for identifying compounds active as antagonists to the polypeptide of claim 19 comprising:
  - contacting a reaction mixture containing a cell type which expresses the TGF $\alpha$ -HII receptor and a compound to be screened; and
  - detecting the absence of a signal generated from said receptor after binding of said compound to identify if the compound is an effective antagonist.

29. A process for diagnosing a disease or a susceptibility to a disease comprising: determining a mutation in the polynucleotide of claim 1.
30. A diagnostic process comprising: analyzing for the presence of the polypeptide of claim 19 in a sample derived from a host.